

**ADMINISTRATIVE PROCEEDING
FILE NO. 3-11616**

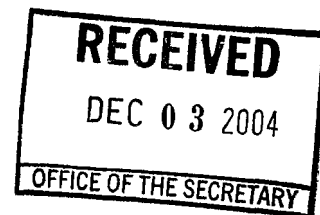
**UNITED STATES OF AMERICA
Before the
SECURITIES AND EXCHANGE COMMISSION**

In the Matter of

**AMERICAN ELECTRIC POWER
COMPANY, INC.**

**STATEMENT OF EVIDENCE TO
BE PRESENTED BY AMERICAN
ELECTRIC POWER COMPANY,
INC.**

**AEP'S STATEMENT OF
EVIDENCE TO BE PRESENTED**



Pursuant to the Commission's scheduling order dated October 6, 2004, American Electric Power Company, Inc. ("AEP") identifies the following testimony and exhibits that it intends to introduce at the hearing in this matter.

1. Direct Testimony of J. Craig Baker.

Mr. Baker is Senior Vice President-Regulatory Services of American Electric Power Service Corporation. Exhibit A contains Mr. Baker's qualifications and a list of prior testimony.

Preliminarily, Mr. Baker would expect to sponsor the following exhibits:

- Copies of AEP's Transmission Contracts used for integration;
- A table showing Ameren Tie Line Transactions from 2001 to 2004;
- A graph showing Ameren Tie Line Transactions from 2001 to 2004;
- A map illustrating major transmission facilities of the AEP System's East and West Zones, and the facilities used for integration;

- A FERC map showing existing and proposed RTO configurations;
- A map showing RTOs in AEP's area; and
- A bubble diagram illustrating alternative contract paths for system integration.

2. Direct Testimony of Paul B. Johnson

Mr. Johnson is Manager – East Transmission Planning for American Electric Power Service Corporation. A copy of Mr. Johnson's qualifications is attached as Exhibit B.

Preliminarily, Mr. Johnson would expect to sponsor the following exhibits:

- A map showing the North American Electric System;
- A copy of a United States Department of Energy article published on the internet and entitled: "Is Our Power Grid More Reliable One Year After the Blackout."
- A copy of a Southwest Power Pool presentation illustrating a power transaction from Texas to New York.

3. Direct Testimony of David Harrison, Jr.

Dr. Harrison is Senior Vice President of NERA Economic Consulting. His qualifications, prior testimony and publications are in Exhibit C.

Preliminarily, Dr. Harrison would expect to sponsor the following exhibits.

- Map of the AEP System
- Maps showing U.S. Manufacturing Employment Clusters
- Map showing North American Natural Gas Pipelines (with Diameter 24" or Greater)

- Map showing Natural Gas Pipeline Transportation Routes and Capacity Levels
- Table showing Net Natural Gas Receipts in AEP States
- Table showing Natural Gas Price Correlation Across U.S. Areas
- Table showing summary of the U.S. Natural Gas Transportation Industry, 1945-1969
- Map showing North American Crude Oil Trunkline Systems
- Map showing major U.S. Refined Product Pipelines
- Table showing characteristics of U.S. Oil and Petroleum Transportation
- Map showing Petroleum Administration for Defense Districts
- Chart showing Inter-PADD Oil Movements in 2002
- Table showing Gasoline Price Correlation Across the U.S.
- Chart showing Gasoline Prices Across the U.S., 1986-2004
- Chart showing U.S. Oil Pipeline Mileage, 1935-2001
- Chart showing U.S. Oil Pipeline Freight Traffic, 1939-2001
- Map showing U.S Highway Network, 1998
- Map showing U.S. Road Network Showing Intensity of Commodity Flows, 1988
- Table showing Highway Trade Between AEP East and AEP West States, 1997
- Table showing Total Highway Trade in AEP East and AEP West, 1997
- Chart showing U.S. Paved Roadway Mileage, 1941-2003

- Chart showing Vehicle Miles Traveled on U.S. Public Roadways, 1938-2003
- Map showing U.S. Waterways
- Map showing U.S. Waterways Showing Intensity of Commodity Flows, 1998
- Table showing AEP River Operations 2003 Volumes and Revenues
- Chart showing U.S. Great Lakes and Inland Waterways Freight Traffic, 1939-2001
- Map showing U.S. Rail Network, 1998
- Map showing U.S. Rail Network Showing Intensity of Commodity Flows, 1998
- Chart showing U.S. Rail Freight Traffic, 1939-2001
- Map showing U.S. Air Freight Shipments, 1998
- Table showing Air Freight Trade Between AEP East and AEP West States, 1997 (Tons)
- Table showing Total Air Freight Trade in AEP East and AEP West, 1997 (Tons)
- Chart showing U.S. Domestic Scheduled Airline Freight Traffic, 1935-1990
- Chart showing U.S. Domestic Scheduled Airline Passenger Traffic, 1935-1990
- Map showing AT&T WorldNet Internet Service Provider (ISP) Backbone

- Table showing E-Commerce Impacts on Various Distribution Costs
(Dollars per Transaction)
- Table showing Characteristics of the U.S. Fiber Cable Network, 2003
- Chart showing U.S. Telephone Wire Mileage, 1935-1990
- Chart showing U.S. Average Daily Telephone Conversations (All Calls),
1935-1987
- Chart showing U.S. Average Daily Long-Distance/Toll Telephone Calls,
1935-1987
- Chart showing Internet Host Counts, 1993-2004
- Table showing Trade from All Modes Between AEP East and AEP West
States, 1997
- Table showing Total Trade from All Modes in AEP East and AEP West,
1997
- Map showing U.S. Census Regions
- Table showing Linkages Among Census Regions
- Quote describing States' Dependence on Waterways

Respectfully submitted,

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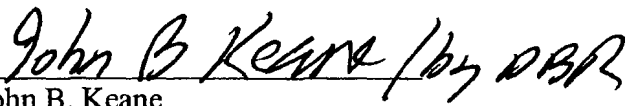

John B. Keane
Jeffrey D. Cross
American Electric Power Company, Inc.
1 Riverside Plaza
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(614) 223-1000
(614) 223-1687 (fax)

EXHIBIT A

J. CRAIG BAKER

J. Craig Baker is currently employed by American Electric Power Service Corporation as Senior Vice President of Regulatory Services. His business address is 1 Riverside Plaza, Columbus, Ohio 43215.

He received a Bachelor's Degree in Business Administration from Walsh College in 1970 and a Masters Degree in Business Administration in Finance from Akron University in 1980. He joined the American Electric Power (AEP) System in 1968 and through 1979 held various positions in the Computer Applications Division. He transferred to the System Operation Division in 1979 and held positions of Administrative Assistant and Assistant Manager. In 1985, he took the position of Staff Analyst in the Controllers Department and, in 1987, he became Manager-Power Marketing in the System Power Markets Department. In 1991, he became Director, Interconnection Agreements and Marketing. He became Vice President-Power Marketing for AEPSC and Senior Vice President of Energy Marketing for AEP Energy Services, Inc. in November 1996 and August 1997, respectively. On July 1, 1998 he became Vice President of Transmission Policy for AEPSC. In June 2000, he became Senior Vice President of Public Policy for AEPSC. In 2001, he assumed his current position.

The following is a list of proceedings in which Mr. Baker has presented testimony:

1. Virginia State Corporation Commission Case No. PUE000550 (10/00) - Direct
2. Virginia State Corporation Commission Case No (PUE000550) (5/01)
- Supplemental
3. Virginia State Corporation Commission Case No (PUE010011) (5/01)
- Supplemental
4. Public Utilities Commission of Ohio, Case No. _____ – Direct

EXHIBIT A

J. CRAIG BAKER

5. Federal Energy Regulatory Commission, Docket No. EC98-40 (6/99)
– Rebuttal
6. Federal Energy Regulatory Commission, Docket No. EC98-40 (6/99)
– Additional Rebuttal
7. Federal Energy Regulatory Commission, Docket No. EC98-40
– Supplemental Direct
8. Federal Energy Regulatory Commission, Docket No. ER98-2770 – Direct
9. Federal Energy Regulatory Commission, Docket No. ER93-540 (4/94) – Rebuttal
10. Federal Energy Regulatory Commission, Docket No. ER93-540 (8/94)
– Supplemental
11. Federal Energy Regulatory Commission, Docket No. ER93-540 (1/95)
– Supplemental
12. Federal Energy Regulatory Commission, Docket No. EL02-111 and EL03-212
(10/05) – Direct
13. Federal Energy Regulatory Commission, Docket No. (ER03-262) (9/03) – Direct
14. Federal Energy Regulatory Commission, Docket No. (ER03-262) (1/04) – Direct
15. Federal Energy Regulatory Commission, Docket No. (ER03-262) (1/04)
– Rebuttal
16. Federal Energy Regulatory Commission, Docket No. (ER04-1072) (11/04)
– Direct
17. Kentucky Public Service Commission, Case No. 2002-00475 – Direct
18. Indiana Utility Regulatory Commission, Case Nos. 42350 and 42352 (12/02)
– Direct
19. Indiana Utility Regulatory Commission, Case Nos. 42350 and 42352 (4/03) –
Rebuttal
20. Virginia State Corporation Commission, Case No. PUE-2000-00550 – (1/04) –
Supplemental Direct

EXHIBIT A

J. CRAIG BAKER

21. Virginia State Corporation Commission, Case No. PUE-2000-00550 – (7/04)-
Rebuttal
22. Public Utilities Commission of Ohio, Case No. 02-3310-EL-ETP – (12/19) -
Direct

EXHIBIT B

PAUL B. JOHNSON

Paul B. Johnson is currently employed by American Electric Power Service Corporation (AEP) as Manager, East Transmission Planning. His business address is 700 Morrison Road, Gahanna Ohio 43230.

Mr. Johnson earned his Bachelor of Science degree in Engineering in 1975 and his Master of Science degree in Management in 1979 from Purdue University. After receiving his Bachelors degree, he joined Sargent and Lundy Engineers in Chicago, Illinois where he was in the engineer trainee program. The following year, he joined Northern Indiana Public Service Corporation (NIPSCO) where he was an electrical field engineer and later a distribution planning engineer. During his employment at NIPSCO, he earned his Master of Science degree in Management. In 1981, he joined American Electric Power Service Corporation. During the course of his employment he obtained his Professional Engineer license and for the past eighteen years he has been an adjunct professor at Franklin University in Columbus, Ohio. He was initially employed by AEP as an engineer in the Regional Planning Division in the System Planning Department. Between 1981 and 1994, he was also assigned responsibilities in the System Performance Appraisal Section and the Extra High Voltage ("EHV") Planning Section. During this period, he was promoted to Senior Engineer. In 1994, he was named manager of the System Performance Appraisal Section. As a result of the June 2000 merger with Central & South West Corporation, he assumed broader responsibilities in his position as manager of the newly formed East Bulk Transmission Planning section. Recently, East Bulk Transmission Planning section and the East Area Transmission Planning sections were combined, and he assumed the position of Manager -- East Transmission Planning.

EXHIBIT C

NERA

Economic Consulting



David Harrison, Jr.
Senior Vice President
NERA Economic Consulting
200 Clarendon Street
Boston, Massachusetts 02116
(617) 621-2612
david.harrison@nera.com

Dr. Harrison received a Ph.D. in Economics from Harvard University, where he was a Graduate Prize Fellow. He holds a B.A. *magna cum laude* in Economics from Harvard College, where he was a member of Phi Beta Kappa, and a M.Sc. in Economics from the London School of Economics, where he was the Rees Jeffreys Scholar. At NERA, Dr. Harrison directs projects in socioeconomic assessments, energy policy, economic policy, transportation, and other areas.

Before joining NERA, Dr. Harrison was an Associate Professor at the John F. Kennedy School of Government at Harvard University. He taught in the areas of microeconomics, environmental and energy policy, regional economics, transportation policy, benefit-cost analysis, and other topics. He was a member of the Faculty Steering Committee of the Energy and Environmental Policy Center at Harvard University and of the Advisory Board of the Interdisciplinary Program in Health at the Harvard School of Public Health.

Dr. Harrison earlier served as a Senior Staff Economist on the President's Council of Economic Advisors, where his areas of responsibility included energy and environmental regulation, natural resource policy, occupational health and safety, and transportation policy. He was the senior staff member on the Regulatory Analysis Review Group and the principal White House staff member on the review of administration policy regarding the automotive industry. He has also worked at the U.S. Department of Transportation, the U.S. Department of Housing and Urban Development, and the National Bureau of Economic Research.

Dr. Harrison has consulted for many private and public organizations on a wide range of topics. Many of these assignments have involved the use of regional economic models, including that developed by Regional Economic Models, Inc., (REMI) and b IMPLAN, among others. Private clients include major companies, trade associations, and law firms. Public sector clients have included the U.S. Environmental Protection Agency, the Georgia Department of Natural Resources, the Massachusetts Department of Environmental Protection, the National Acid Precipitation Assessment Program, the Organization for Economic Cooperation and Development (OECD), the Italian Ministry

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of the Environment, the Massachusetts Department of Environmental Management, and the South Coast Air Quality Management District.

Dr. Harrison is the author or co-author of five books or monographs and numerous articles in books and professional journals, including *The American Economics Review*, *Review of Economics and Statistics*, *Journal of Environmental Economics and Management*, *Harvard Environmental Law Review*, *Journal of Urban Economics*, *Public Policy*, *Regulation*, *Hazardous Waste and Issues in Science and Technology*. His op-ed articles have been published in *The New York Times*, *Los Angeles Times* and the *Journal of Commerce*. Dr. Harrison has served as a reviewer for many professional journals.

EDUCATION

HARVARD UNIVERSITY
Ph.D., Economics, 1974
M.A., Economics, 1971

LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE
M.Sc., Economics, 1968

HARVARD UNIVERSITY
B.A., Economics (Magna Cum Laude), 1967

PROFESSIONAL EXPERIENCE

- 1988- NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.
Senior Vice President, Vice President. Directs projects in the economics of environment, energy, transportation and other areas.
- 1987-1988 PUTNAM, HAYES & BARTLETT, INC.
Senior Associate. Directed projects in the economics of energy, antitrust, and other areas.
- 1985-1987 DUN & BRADSTREET TECHNICAL ECONOMIC SERVICES
Director of Product Development. Directed economic studies in energy, transportation, and industrial location.
- 1980-1985 JOHN F. KENNEDY SCHOOL OF GOVERNMENT, HARVARD UNIVERSITY
Associate Professor. Areas of instruction: microeconomics; regulation; transportation; environmental policy; energy policy; natural resource economics; urban economics; law and economics. Participant, Harvard Faculty Project on Regulation. Faculty Steering Committee, Energy and Environmental Policy Center. Principal Investigator on research grants.
- 1979-1980 PRESIDENT'S COUNCIL OF ECONOMIC ADVISORS
Senior Staff Economist. Worked with other White House staff and agency officials on domestic issues. Areas of responsibility included regulation, environment, transportation, and antitrust. Principal staff on the Regulatory

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Analysis Review Group. Principal White House staff for the review of Administration policy regarding the automotive industry.

- 1974-1979 DEPARTMENT OF CITY AND REGIONAL PLANNING, HARVARD UNIVERSITY
Assistant and Associate Professor. Areas of instruction: microeconomics; statistics; econometrics; transportation; environment; urban development; and housing policy. Participant, MIT-Harvard Joint Center for Urban Studies. Faculty Chairman, Concentration in Land Use and Environment.
- 1974 NATIONAL BUREAU OF ECONOMIC RESEARCH
Research Associate. Co-author of benefit-cost study of automotive air pollution prepared by the National Academy of Sciences for the Committee on Public Works, U.S. Senate.
- 1973-1974 U.S. DEPARTMENT OF TRANSPORTATION
Economist. Performed economic studies of transportation issues, including urban mass transportation, automobile emission and safety programs, and highway finance.
- 1970-1974 DEPARTMENT OF ECONOMICS, HARVARD UNIVERSITY
Teaching Fellow and Assistant Head Tutor. Areas of instruction: microeconomics; macroeconomics; econometrics; transportation; public finance; environmental policy; and housing policy.
- 1971 THE URBAN INSTITUTE
Research Economist. Participated in econometric studies as participant in the Program on Local Public Finance.
- 1969 U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Economist. Participated in economic evaluations of HUD infrastructure programs, primarily the water and sewer grant program.

HONORS AND PROFESSIONAL ACTIVITIES

Summa Cum Laude, Senior Honors Thesis, Harvard University, 1967.
Phi Beta Kappa, Harvard University, 1967.
Rees Jeffreys Scholar In the Economics of Transport, London School of Economics, 1967-68.
Graduate Prize Fellowship, Harvard University, 1971-1974.
Member, American Economic Association.
Member, Association of Environmental and Resource Economists.
Member, International Association of Energy Economists.
Member, Public Policy for Surface Freight Transportation Study, Transportation Research Board, National Research Council.
Member, Advisory Committee, Massachusetts Department of Environmental Quality Engineering.
Member, Peer Review Panel, National Acid Precipitation Assessment Program.
Member, Public Health and Socio-Economic Task Force, South Coast Air Quality Management District (Los Angeles).
Member, Marketable Permits Advisory Committee, South Coast Air Quality Management District (Los Angeles).
Member, Socioeconomic Technical Review Committee, South Coast Air Quality Management District (Los Angeles).
Member, Harvard Graduate Society Council.
Member, RECLAIM Advisory Committee (Los Angeles).
Member, Board of Directors, Cambridge Health Alliance (Harvard Medical School Teaching Hospital).
Participant, Aspen Institute Dialog on Climate Change.

Consultant to following public organizations:

U.S. Environmental Protection Agency; U.S. Department of Transportation; Massachusetts Port Authority; Organization for Economic Cooperation and Development (OECD, Paris); European Commission Directorate-General Environment; Civil Aeronautics Board; Italian Ministry of Environment; Massachusetts Department of Environmental Protection; UK Department of Transport; UK Department for Environment, Food and Rural Affairs, City of Chicago Department of Aviation; Conference Board of Canada; South Coast Air Quality Management District; Massachusetts Department of Environmental Management; and numerous state and local governments, trade associations, and private firms.

Reviewer for the following professional journals:

American Economic Review; Review of Economics and Statistics; Journal of Political Economy; Journal of Environmental Economics and Management; Journal of Urban Economics; Journal of Regional Science; Journal of Policy Analysis and Management; and Public Policy.

PUBLICATIONS**Books and Monographs**

Emission Trading in the U.S.: Experience, Lessons, and Considerations for Greenhouse Gases, (co-author). Prepared for the Pew Center on Global Climate Change, May 2003.

The Distributive Effects of Economic Instruments for Global Warming. Paris: Organization for Economic Cooperation and Development, 1996.

The Distributive Effects of Economic Instruments for Environmental Policy. Paris: Organization for Economic Cooperation and Development, 1994.

Who Pays for Clean Air, Cambridge, MA: Ballinger Publishing Company, 1975.

The Automobile and the Regulation of Its Impact on the Environment, (co-author). Norman, OK: Oklahoma University Press, 1975.

Articles and Papers

"Assessing the Financial Consequences to Firms and Households of a Downstream Cap-And-Trade Program to Reduce U.S. Greenhouse Gas Emissions" in *A Climate Policy Framework: Balancing Policy and Politics*. John A. Riggs, ed., Washington, DC: The Aspen Institute, 2004.

"Ex Post Evaluation of the RECLAIM Emissions Trading Program for the Los Angeles Air Basin," prepared for the National Policies Division, OECD Environment Directorate, June 2003.

"Carbon Emission Trading – New Commodity Market in Europe," in *WorldPower 2003*, January 2003.

"Carbon Emission Trading: Creating a New Traded Commodity Market in Europe," in *WorldPower*, October 2002.

"A Groundbreaking Proposal: European Greenhouse Gas Emissions Trading," in *Infrastructure Journal*, August 2002.

"Europe Warms to Emissions Trading," in *Energy Regulation Brief*, NERA, April 2002.

"Economics Issues In Section 316(B) Decisions," in *A Towering Challenge*, C. Richard Bozek, Electric Perspectives, January/February 2002.

"Tradable Permit Programs for Air Quality and Climate Change," in *International Yearbook of Environmental and Resource Economics*, Volume VI, Henk Folmer and Thomas Tietenberg (Eds.). London: Edward Elgar, 2002.

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Energy-Environment Policy Integration and Coordination Study, (contributor), Palo Alto, CA: Electric Power Research Institute, December 2000.

Critical Issues in International Greenhouse Gas Emissions Trading: Setting Baselines for Credit-Based Trading Programs-Lessons Learned from Relevant Experience. Palo Alto, CA, Electric Power Research Institute, June 2000.

"Tradable Permits for Air Pollution Control: The United States Experience," in *Domestic Tradable Permit Systems for Environmental Management: Issues and Challenges*, J.P. Barde and T. Jones (Eds.). Paris: Organization for Economic Cooperation and Development, 1999.

"Emissions Trading: Turning Theory Into Practice in the Los Angeles Air Basin," in *Pollution for Sale: Emissions Trading and Joint Implementation*, S. Sorrell and J. Skea (Eds.). London: Edward Elgar, 1999.

"Commentary: International Greenhouse Gas Trading and the Kyoto Protocol," in *Climate Change Policy: Practical Strategies to Promote Economic Growth and Environmental Quality*, C. Walker, M. Bloomfield and M. Thorning (Eds.). Washington, DC: The American Council for Capital Formation Center for Policy Research, May 1999

"Priorities for the Development of GHG Trading Programs: Implications of the U.S. Experience," in *Global Climate Change: Science, Policy, and Mitigation/Adaptation Strategies*, C.V. Mathai and J. Kinsman (Eds.). Washington, DC: Air & Waste Management Association, October 1998.

"Commentary on 'Tradable Emissions Rights and Joint Implementation for Greenhouse Gas Abatement: A Look Under the Hood,'" in *The Impact of Climate Change Policy on Consumers: Can Tradable Permits Reduce the Cost?* C. Walker, M. Bloomfield, and M. Thorning (Eds.). Washington, DC: The American Council for Capital Formation Center for Policy Research, April 1998.

"Considerations in Designing and Implementing an Effective International Greenhouse Gas Trading Program," prepared for the Global Climate Coalition, October 1997.

"The Use of Externality Adders for Greenhouse Gas Emissions in Electric Utility Resource Planning," in *Internalization of Social Costs of Energy Conversion and Transportation in the United States and Europe for a Sustainable Development*, O. Hohmeyer and R. Ottinger (Eds.). Berlin: Springer-Verlag, 1996.

"Environmental Adders in the Real World," (with A. Nichols), in *Resources and Energy Economics*, December 1996.

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"Recent Evidence on the Appropriate Timing of Reductions in Greenhouse Gas Emissions," (with A. Nichols), prepared for the Global Climate Coalition, July 1996.

"The Socioeconomic Effects of externality Adders for Electric Utility Emissions," in *Technical Review of Externalities Issues*. Palo Alto, CA: Electric Power Research Institute, December 1994.

"Utility Externalities and Emissions Trading: California is Developing a Better Way," in *Social Costs of Energy - Present Status and Future Trends*, R. Ottinger and O. Hohmeyer (Eds.). Berlin: Springer-Verlag 1994.

"Who Wins and Who Loses from Economic Instruments?" *The OECD Observer* 180:29-31, February/March 1993.

"Tradable Permits and Social Costing: The California Experience," prepared for the American Economic Association and Allied Social Science Association Meeting, Anaheim, California, January 6, 1993.

"Emissions Trading: A Better Way to Include Environmental Costs in Electric Utility Resource Planning," prepared for the American Planning Association and Edison Electric Institute, March 1992.

"Economists' Contribution to the Environment," *Journal of Air and Waste Management Association*, October 1991.

"Potential Cost Savings and Environmental Effects of Using Emissions Trading to Manage NO_x in Ontario," (with A. Nichols), in *Air and Waste Management Through the 90's*, R. E. Clement (Ed.), Air and Waste Management Association, Ontario, Canada, April 1990.

"Market-Based Approaches for Environmental Protection: Implications for Business," (with A. Nichols), in *Special Report on Global Environmental Issues*, B. Gentry (Ed.). Washington, DC: The Bureau of National Affairs, 1990.

"Environmental Policy in Europe: Economic Lessons from the United States Experience," in *Environmental Damages*. Rome, V. Polidoro (Ed.). Italy: Italian Government Printing Office, August 1990.

Comments before the Department of Interior on *Advanced Notice of Proposed Rulemaking Regarding Revision of Natural Resource Damage Assessment Regulations*, 43 CFR Part 11, (with J. Hausman), November 1989.

"To Live and Breathe in L.A.," (with P. Portney, A. Krupnick, and H. Dowlatabadi), *Issues in Science and Technology* V(4):Summer 1989.

"Policy Approaches for Controlling Greenhouse Gases," paper prepared for the Energy Research Group, May 1989.

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"Yes to Clean Air, But at What Cost?" *The New York Times*, March 26, 1989.

"Realistic Air-Quality Goals Will Prevent Cost Explosion," *Los Angeles Times*, January 11, 1989.

"Put the Clock on Landing Fees," *The Journal of Commerce*, November 10, 1988.

"Reforming Airport Pricing to Reduce Congestion," paper presented to the Conference on Transportation Options for the 21st Century, Boston, Massachusetts, July 1988.

"Awaiting the Second Shoe at Congested Logan," *The Boston Globe*, March 29, 1988.

"Banning Hazardous Material from Land Disposal Facilities," *Hazardous Waste* 1(1984).

"Benefit-Cost Analysis of Environmental Regulation: Case Studies of Hazardous Air Pollutants," (with J. Haigh and A. Nichols), *Harvard Environmental Law Review* 8(1984).

Research and Demonstration of Improved Methods for Carrying Out Benefit-Cost Analysis of Individual Regulations, Volumes I - IV, (Principal Investigator), prepared for the U.S. Environmental Protection Agency, Final Report, November 1984.

Using the Hedonic Housing Value Method to Estimate the Benefits of Hazardous Waste Cleanup," (with J. Stock), prepared for the U.S. Environmental Protection Agency, November 1984.

"Using the Averting Cost Method to Estimate the Benefits of Hazardous Waste Cleanup," (with M. O'Keeffe), paper prepared for the U.S. Environmental Agency, November 1984.

"The Value of Acquiring Information Under Section 8(a) of the Toxic Substances Control Act: A Decision-Analytic Approach," (with A. Nichols, L. Boden, and R. Terrell), prepared for the U.S. Environmental Protection Agency, November 1984.

"Hedonic Housing Values, Local Public Goods, and the Benefits of Hazardous Waste Cleanup," (with J. Stock), Discussion Paper, Energy and Environmental Policy Center, Harvard University, November 1984.

"The Regulation of Aircraft Noise," in *Incentive Arrangements for Environmental Protection*, T. Schelling (Ed.). Cambridge, MA: MIT Press, 1983.

"Benefit-Based Flexibility in Environmental Regulation," (with A. Nichols), Discussion Paper, Energy and Environmental Policy Center, Harvard University, April 1983.

"Who Loses from Reform of Environmental Regulation," (with P. Portney), in *Reform of Environmental Regulation*, Wesley Magat (Ed.). Cambridge, MA: Ballinger Publishing Company, 1982.

"Regulatory Reform in the Large and in the Small," (with P. Portney), in *Reforming Government Regulation*, LeRoy Graymer (Ed.). Beverly Hills, CA: Sage Publications, 1982.

"Imports and the Future of the U.S. Automobile Industry," (with J. Gomez-Ibanez), *American Economic Review, Papers and Proceedings* 72(May 1982).

"Regulation and Distribution: An Agenda for Research," in *Creating An Agenda for Regulatory Research*, A. Ferguson (Ed.). Cambridge, MA: Ballinger Publishing Company, 1981.

"Cost-Benefit Analysis and the Regulation of Environmental Carcinogens," in *Management of Carcinogenic Risk*, W. Nicholson (Ed.). New York: New York Academy of Sciences, 1981.

"Distributional Objectives in Health and Safety Regulation," in *The Benefits of Health and Safety Regulation*, A. Ferguson (Ed.). Lexington, MA: D.C. Heath and Company, 1981.

"The Local Government Role in Energy Policy," (with M. Shapiro), in *Energy and Environment: Conflict and Resolution*, R. Axelrod (Ed.). Lexington, MA: D.C. Heath and Company, 1981.

"Making Ready for the Clean Air Act," (with P. Portney), *Regulation* 5(March/April 1981).

"Discussion of Robert C. Ellickson, 'Public Property Rights: Vicarious Intergovernmental Rights and Liabilities as a Technique for Correcting Intergovernmental Spillovers,'" in *Essays on the Law and Economics of Local Government*, D. Rubinfeld (Ed.). Washington, D.C: The Urban Institute, 1979.

"Simulating the Impacts of Transportation Policy on Urban Land Use," Discussion Paper, Department of City and Regional Planning, Harvard University, April 1979. (Presented at meeting of the Eastern Economics Association, May 1979.)

"Income and Urban Development," Discussion Paper, Department of City and Regional Planning, Harvard University, April 1979.

"The Distribution of Benefits from Improvements in Urban Air Quality," (with D. Rubinfeld), *Journal of Environmental Economics and Management* 5(December 1978).

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"The Impact of Transit Systems on Land Use Patterns in the Pre-Automobile Era," Discussion Paper, Department of City and Regional Planning, Harvard University, December 1978.

"The Air Pollution and Property Value Debate: Some Empirical Evidence," (with D. Rubinfeld), *Review of Economics and Statistics* 60(November 1978).

"Transportation Technology and the Dynamics of Urban Land Use Patterns," paper presented to the Conference on Urban Transportation, Planning, and the Dynamics of Land Use, Northwestern University, June 1978.

"Hedonic Housing Values and the Demand for Clean Air," (with D. Rubinfeld), *Journal of Environmental Economics and Management* 5 (March 1978).

"Controlling Automotive Emissions: How to Save More Than \$1 Billion per Year and Help the Poor Too," *Public Policy* 25 (Fall 1977).

"Reply to Michelle White's Comment on 'Cumulative Urban Growth and Urban Density Functions,'" (with J. Kain), *Journal of Urban Economics* 4 (January 1977).

"Cumulative Urban Growth and Urban Density Functions," (with J. Kain), *Journal of Urban Economics* 1 (January 1974).

PRESENTATIONS AND ORAL TESTIMONY

"Overview of Allocation Choices: Alternatives and Implications," presented to Stakeholder Workshop, Regional Greenhouse Gas Initiative, October 14, 2004.

"White Paper: TXU Activities Regarding Actual and Potential Air Emissions and Climate Change Policies," presented to TXU Shareholders, October 1, 2004.

"Emissions Trading: Concepts, Experience, Lessons, and Implications Greenhouse Gas Programs," presented to Iberdrola, March 25, 2004.

"How CEPCO Can Gain from CO2 Trading: NERA-JANUS Study," presented to Chubu Electric Power Co., Inc., November 25, 2003.

"Background on NERA Study 'Socioeconomic Effects of the Niagara Power Project and Local NYPA Presence'," presented to Niagara Power Project Relicensing Stakeholder Meeting, Niagara Falls, NY, November 13, 2003.

"Economic and Environmental Analyses of CARB Tier 3 Non-Handheld Exhaust Emission Regulations," presented to the California Air Resources Board staff in Sacramento, CA via videoconference from Boston, MA, September 18, 2003.

"The Rise of Emissions Trading in Air Quality and Climate Change Policy," presented to EPRI Environmental Sector Council, San Antonio, Texas, September 12, 2003.

"Market Based Instruments and Shipping Emissions," presented to conference sponsored by DG Environment, Brussels, September 5, 2003.

"Economic and Environmental Analyses of CARB Tier 3 Non-Handheld Emission Regulations: Status Report and Preliminary Results", presented to Outdoor Power Equipment Institute and Engine Manufacturers Association (OPEI & EMA), Washington, DC, August 26, 2003.

"Ex Post Evaluation of the RECLAIM Emissions Trading Program for the Los Angeles Air Basin", presented to OECD Workshop on Ex Post Evaluation of Tradable Permits: Methodological and Policy Issues, Paris, January 21, 2003.

"GreenHouse Gas Emissions Trading and Firm Risk Management Behavior", presented to the ARPEL-IPIECA Workshop, A Practical Approach to Identifying Emission Reduction Opportunities: Examples under the Kyoto Mechanisms in Latin America and the Caribbean, San Jose, Costa Rica, December 3, 2002.

"Initial Allocations in Various Systems of Emissions Trading" presented to the Exploring New Approaches in Regulating Industrial Installations (ENAP) Workshop on Emissions Trading for NO_x and SO_x in Europe, The Hague, Netherlands, November 22, 2002.

"Overview of Alternative Allocations for European GHG Trading Program," presented to IEA-EPRI-IETA Workshop on Greenhouse Gas Emissions Trading, Paris, September 17, 2002.

"Evaluation of Alternative Allocations for European GHG Trading Program," presented to IEA-EPRI-IETA Expert Meeting: Allocation of GHG Objectives, Paris, September 16, 2002.

"Emissions and Cost-Effectiveness of the Pull-Ahead Requirements for Heavy Heavy-Duty Diesel Engines," presented to U.S. Office of Management and Budget, Washington, DC, July 24, 2002.

"Greenhouse Gas Emission Trading Programs," presented to Chubu Electric Company, Cambridge, MA, July 16, 2002.

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"Electricity System Impacts of Nuclear Shutdown Alternatives," presented to New York City Council, New York, NY, May 7, 2002.

"Economic Analysis of Alternative EPA Snowmobile Regulations," presented to U.S. Environmental Protection Agency Office of Mobile Sources, Ann Arbor, Michigan, May 1, 2002.

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"Evaluation of Alternative Allocations for European GHG Trading Program," presented to European Commission, Brussels, Belgium, November 13, 2001.

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"CO₂ Permit Allocations: Evaluation of Alternatives for the EC," presented to the European Commission, Brussels, Belgium, March 5, 2001.

"Economic Benefits to the Chicago Region from the Whitecap Energy System," presented to the Illinois Department of Natural Resources, Springfield, Illinois, January 30, 2001.

"An Economic Approach to 316(b) BTA Determination," presented to the UWAG 316(b) Technical Workshop for the Environmental Protection Agency, Annapolis, Maryland, January 25, 2001.

"Impacts of ZEV Sales Mandate on California Fleet Emissions," presented to the California Air Resource Board, Sacramento, CA, September 7, 2000.

"Methodology for Cost-Benefit Assessment of Fish Protection Alternatives for the Mercer Facility," presentation to the Mercer 316(b) Permit Team, Newark, New Jersey, August 8, 2000.

"Economic Assessment of the Cost-Effectiveness of Alternative MACT Standards for the Metal Coil Surface Coating Industry," presentation to the U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, August 2, 2000.

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"Emissions Trading and Developing Countries: Implications of U.S. Experience and World Bank Role," presented at World Bank – Energy Week 2000, Washington, DC, April 13, 2000.

"Economics and Environmental Regulation: Opportunities and Obstacles," presented to Crowell & Moring, LLP, Washington, DC, March 22, 2000.

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"RECLAIM: A Comprehensive Approach to Air Quality Regulation," presented to Edison Electric Institute, Washington, DC, March 6, 2000.

"Domestic GHG Trading: Assessing Impacts on Electric Utilities," presented to Electric Power Research Institute, Washington, DC, February 17, 2000.

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"Fueling Electricity Growth for a Growing Economy," presented to Edison Electric Institute, Palm Springs, California, January 13, 2000.

"Roadmap for Costs & Benefits of Fish Protection Alternatives for the Salem Facility," presented to the Monitoring Advisory Committee, Mt. Laurel, New Jersey, December 9, 1999.

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"Energy-Environmental Policy Integration & Coordination (E-EPIC), U.S. Economic Growth & Health," presented to Electric Power Research Institute, Washington, DC, May 13, 1999.

"Costs & Benefits of Fish Protection Alternatives at the Salem Generating Facility," presented to the New Jersey Department Environmental Protection, Trenton, New Jersey, May 4, 1999.

"Priorities for the Development of GHG Trading Programs: Implications of the United States Experience," presented to the EPRI Global Climate Change Area Meeting, San Diego, California, January 26, 1999.

"Economic Impacts of ARB Staff Proposed Marine Emission Standards," presented to the California Air Resources Board Hearing, Sacramento, California, December 10, 1998.

"Cost-Benefit Analysis of MACT Standards for Boat Manufacturing," presented to the National Marine Manufacturers Association, Tampa, Florida, October 15, 1998.

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"Economic Analyses of Alternative California Standards for Exhaust Emissions from Marine Engines," presented to California Air Resources Board, Sacramento, California, October 9, 1998.

"Tradable Permits for Air Pollution Control: The United States Experience," presented to the Organization for Economic Cooperation and Development Workshop on Domestic Tradable Permit Systems for Environmental Management, Paris, September 24, 1998.

"International Greenhouse Gas Trading," presented to the American Council for Capital Formation, Washington, DC, September 23, 1998.

"International Greenhouse Gas Emission Trading: Promise and Performance," presented to the EPRI Global Climate Change Research Seminar, Washington, DC, May 27, 1998.

"NO_x Trading Program to Implement EPA's SIP Call," presented to Indiana Department of Environmental Management, Indianapolis, Indiana, May 4, 1998.

"Natural Resource Damage Assessments: Economic Techniques," presented to PSE&G, Newark, New Jersey, December 9, 1997.

"Use of Economic Analysis in Environmental Impact Statements and Other Regulatory Proceedings," presented to Hudson River Utilities, New York, New York, November 19, 1997.

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"International Greenhouse Gas Trading: A 'Silver Bullet' Train?" presented to Sidebar Meeting, United Nations Framework Convention on Climate Change, Bonn, Germany, October 23, 1997.

"Economic Impact Analyses with REMI: Two Case Studies," presented to the REMI Seminar, Miami, Florida, October 6, 1997.

"International Greenhouse Gas Trading," presented to the American Council for Capital Formation Conference on Global Warming, Washington, DC, September 24, 1997.

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"Economic Analysis of Alternative EPA Standards for Large CI Non-Road Engines: Draft NERA Results," presented to the Engine

Manufacturers Association and the Equipment Manufacturers Institute, Chicago, Illinois, September 4, 1997.

"Impacts on the Hawaii Economy of Alternative Resource Plans for Oahu," presented to the Hawaiian Electric Company IRP Advisory Group, Honolulu, Hawaii, July 24, 1997.

"Cost-Effectiveness of ARB Small Off-Road Engine Regulations: Preliminary Results," presented to the California Air Resources Board, Sacramento, California, May 2, 1997.

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"Economic and Environmental Effects in Maine of the Maritimes & Northeast Pipeline Project," presented to the Maine Economic Development Council, Rockland, Maine, February 12, 1997.

"Economic Analyses of Alternative ARB Regulatory Requirements for Small SI Non-Handheld Engines," presented to the California Air Resources Board staff, El Monte, California, February 4, 1997.

"Cost-Effectiveness of Alternative Emission Control Technologies for Small Utility Engines," presented to California Air Resources Board staff, El Monte, California, December 18, 1996.

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"Economic and Environmental Effects of the Maritimes & Northeast Pipeline Project," presented to a media conference and Editorial Boards of the *Bangor Daily News*, the *Portland Press Herald*, and the *Kennebec Journal*, Bangor and Augusta, Maine, November 21, 1996.

"Emission Trading: Alternative Approaches, Experience and Implications for CO₂," prepared for the AAMA Climate Change Task Force, Washington, DC, September 27, 1996.

"Emission Regulations for Non-Road Engines," presentation to the U.S. Environmental Protection Agency, Ann Arbor, Michigan, July 17, 1996.

"Assessing the Economic Impacts of Alternative HECO Resource Plans," presented to the PSP&ED Advisory Group of the Hawaiian Electric Company, Honolulu, Hawaii, July 3, 1996.

"Valuation of Externalities: Methods and Examples," presented to the PSP&ED Advisory Group of the Hawaiian Electric Company, Honolulu, Hawaii, April 3, 1996.

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"Economic Evaluation of Alternative Regulations of Exhaust Emissions from Small Utility Engines," presented to U.S. Environmental Protection Agency, Ann Arbor, Michigan, November 28, 1995.

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"Briggs & Stratton/NERA Phase 2 Economic Study," presented to U.S. Environmental Protection Agency, Ann Arbor, Michigan, September 22, 1995.

"Treatment of Greenhouse Gas Emissions in Electric Utility Resource Planning," prepared for the Third Conference on External Costs, *Internalization of Social Costs of Energy Conservation and Transportation in the United States and Europe for a Sustainable Development*, Ladenburg, Germany, May 29, 1995.

"Combining Science and Economics: The Case of Superfund," presented to ENVIRON, Princeton, New Jersey, May 16, 1995.

"Social Costing: Policy Overview," presented to the British Columbia Utilities Commission Social Costing Workshop, Vancouver, British Columbia, March 29, 1995.

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"RECLAIM: Turning Theory Into Practice for Emissions Trading in the Los Angeles Basin," presented to the Stanford Law School Environmental Markets Seminar, Stanford, California, March 8, 1995.

"Emission Trading for NO_x: Experience with RECLAIM," presented to Edison Electric Institute, Washington, DC, May 26, 1994.

"Emission Trading for NO_x: The RECLAIM Experience," presented to Edison Electric Institute, May 13, 1994.

"Distributive Impacts of Economic Instruments for Greenhouse Gas Abatement," presented at the Air & Waste Management Association International Specialty Conference *Global Climate Change: Science, Policy and Mitigation Studies*, Phoenix, Arizona, April 6, 1994.

"Projecting the Price of RECLAIM Trading Credits for NO_x," presented at a California Energy Commission Workshop, Sacramento, California, February 4, 1994.

Comments on "Presumptive Pigouvian Tax: Complementing Regulation to Mimic an Emissions Fee," presented to the Conference on Market Approaches to Environmental Protection, Stanford University, Palo Alto, California, December 3, 1993.

"Economic Effects of Regulatory Requirements to Protect Grand Canyon Visibility," presented to the Grand Canyon Visibility Transport Commission, Salt Lake City, Utah, October 21, 1993.

"Evolving Role of Externalities in Utility Activities," presented to the Electric Power Research Institute Energy Analysis Task Force, Nashville, Tennessee, September 29, 1993.

"External Costs of Electricity Generation in Southern Nevada," presented on behalf of Nevada Power Company, at a workshop sponsored by the Nevada Public Service Commission, Las Vegas, Nevada, May 19, 1993.

"Environmental Externalities," presented to Central and Southwest Corporation, Dallas, Texas, May 4, 1993.

"Creating Markets for Environmental Protection: Overview of Experience with Tradable Permit Systems," presented at The Claremont Institute

Conference *Environmental Protection Through Market Incentives: A Strategy for the Future*, Los Angeles, California, January 20-21, 1993.

"Tradable Permits and Social Costing: The California Experience," presented at the American Economic Association and Allied Social Science Association Meetings, Anaheim, California, January 6, 1993.

"The Distributive Impacts of Economic Instruments for Environmental Policy," presented to the OECD Group on Economic and Environmental Policy Integration, Paris, November 19, 1992.

"Emissions Trading: A Better Way to Incorporate Environmental Costs in Electric Utilities Resource Planning," presented at the Pace University

Center for Environmental Legal Studies Conference on *Incorporation of Social Costs of Energy in Resource Acquisition Decisions*, Racine, Wisconsin, September 8-11, 1992.

"Banking and Trading of Air Emission Reduction Credits," presented to the State of Connecticut Office of Policy and Management Meeting on Emissions Trading, Hartford, Connecticut, July 22, 1992.

"The Distributive Effects of Economic Instruments for Environmental Policy," presented to the OECD Group on Economic and Environmental Coordination, Paris, June 18, 1992.

"A Marketable Permits Program for the Los Angeles Air Basin," prepared for MIT Center for Energy and Environmental Policy Research *1992 New Developments Workshop*, Cambridge, Massachusetts, April 30, 1992.

"The Road From Theory to Practice: Developing a Marketable Permits Program for the Los Angeles Air Basin," seminar presented to the MIT Center for Energy and Environmental Policy Research, Cambridge, Massachusetts, March 11, 1992.

"Southern California Edison Damage-Based Values for Residual Emissions Valuation," presented to the California Energy Commission ER 92 Committee Workshop on Air Emission Damage Functions, Sacramento, California, January 29, 1992.

"Turning Theory Into Practice: Developing a Marketable Permits Program for the Los Angeles Basin," prepared for Project 88 -- Round II Seminar, John F. Kennedy School of Government, Harvard University, Cambridge, Massachusetts, December 11, 1991.

"Workshop on Economic Instruments," prepared for Imperial Oil Ltd., Toronto, Canada, October 1-2, 1991.

"Market-Based Approaches to Air Quality Improvement," presented to the Board of Directors of the California Council for Environmental and Economic Balance, San Diego, California, July 1991.

"Environment and Equity," presented to the Board of Directors of the California Council for Environmental and Economic Balance, San Diego, California, July 1991.

"The Lake Calumet Airport and Chicago's Economic Future," presented to the Lake Calumet Airport Advisory Committee, Chicago, Illinois, July 2, 1991.

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"Contribution of Economists to Environmental Policy: Comments on the Gruenspect-Lave Critical Review," presented to the Air and Waste Management Association, Vancouver, British Columbia, June 19, 1991.

"Airports and Economic Development," presented to the Southeast Chicago Development Commission, Chicago, Illinois, May 24, 1991.

"Environmental Economics in the 1990s," presented to the OECD Group of Economic Experts, Paris, May 16, 1991.

"The Clean Air Act: How to Make the Mandate Worth the Effort," presented to the Workshop on Emerging Environmental Policies and Business, North Carolina State University, Raleigh, North Carolina, April 18, 1991.

"Market-Based Approaches to Managing Air Emissions in California's South Coast Basin," presented to Workshop on Market Incentives, South

Coast Air Quality Management District, El Monte, California, January 29, 1991.

"Market-Based Approaches to Managing Air Emissions in California's South Coast Basin," presented to the Steering/Advisory Committee on Market Incentives, South Coast Air Quality Management District, Los Angeles, California, December 11, 1990.

"How Environmental Policies Influence Natural Gas Markets," presented to the Conference on Emerging Competition in California Gas Markets, sponsored by the California Energy Commission, San Diego, California, November 9, 1990.

"Air Quality and Electric Vehicles," presented to the Electric Vehicle Symposium, sponsored by the Western Energy Supply and Transmission Associates, Ontario, California, November 8, 1990.

"Incorporating Environmental Impacts in Public Utility Commission Regulation," presented to the Energy Research Group, Washington, DC, November 6, 1990.

"The Promise and Performance of the Acid Rain Allowance Program," presented to the Conference on the New Acid Rain Legislation: Capitalizing on a Market-Based Approach, sponsored by Public Utilities Reports, Inc., Washington, DC, October 24, 1990.

"What Environmental Legislation Means for Crude Oil Marketers: A U.S. Overview," prepared for the Oxford College of Petroleum Studies, Long Beach, California, presented October 1, 1990.

"Market-Based Approaches for Environmental Improvement," presented to the Eleventh Annual Antitrust and Trade Regulation Seminar, sponsored by National Economic Research Associates, Santa Fe, New Mexico, July 5-7, 1990.

"Using Market-Based Approaches in the Energy Sector," presented to the OECD Economic Incentives Working Group, Paris, June 19-20, 1990.

"Emissions Trading: Concepts and Experience," prepared for The Canadian Electrical Association and presented at the *Workshop on Tradable Permits*, Toronto, Canada, June 13, 1990.

"Prototypical Trading Policy: Stationary Sources of NO_x," prepared for NO_x/VOC Task Force and presented at the *Workshop on Flexible Mechanisms*, Montreal, Canada, June 6-7, 1990.

"Emissions Trading: An Overview of Concepts and Experience," prepared for NO_x/VOC Task Force and presented at the *Workshop on Flexible Mechanisms*, Montreal, Canada, June 6-7, 1990.

"Market-Based Approaches for Environmental Improvement," presented to the Board of Directors, The Conference Board of Canada, Edmonton, Canada, May 30, 1990.

"Socioeconomic Impacts of Proposed Rule 431.2," prepared for Southern California Edison and presented to the South Coast Air Quality Management District, Los Angeles, California, May 4, 1990.

"Market-Based Approaches for Environmental Protection: Lessons from the U.S. Experience," presented to the Advisory Board, Research Program on Business and the Environment, The Conference Board of Canada, Toronto, Canada, April 24, 1990.

"Ozone and Economics," presented to the Air and Waste Management Association, Los Angeles, California, March 20, 1990.

"An Economist Looks at the Federal Regulation of Biotechnology," presented to the Conference on Emerging Issues in Biotechnology, sponsored by Boston University Law School, Boston, Massachusetts, March 2, 1990.

"New Approaches for Controlling Global Warming," presented to the Conference on Global Warming, Vermont Law School, South Royalton, Vermont, February 16, 1990.

"Clear Thinking on Clear Air: Agenda for the 1990's," paper and panel discussion presented at the American Enterprise Institute's Thirteenth Annual Policy Conference, Washington, DC, December 4, 1989.

"The Acid Rain Allowance Program," presented to the Energy Research Group, Washington, DC, November 3, 1989.